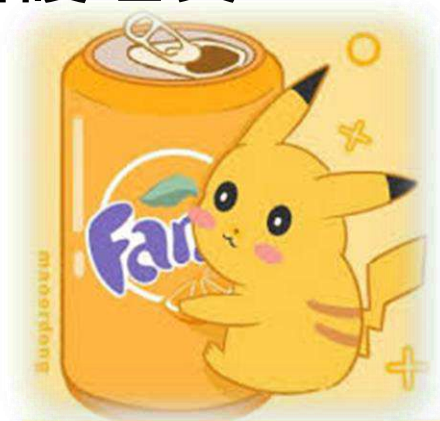


碳酸飲料是否可以改善吞嚥功能？

引言人：7B 洪瑞國 副護理長/ 蔡淑君護理長

報告日期：111/11/29



前言

- 國內研究發現，台灣約有 **12.8%** 的 65 歲以上長者，經過評估為咀嚼吞嚥異常，而咀嚼吞嚥異常，可能會提升長者罹患吸入性肺炎風險。在國人十大死因中，肺炎已於 2016 年竄升為第三位，至2021年因肺炎死亡的人數，仍持續增加。(衛生福利部口腔健康司，2022)

前言

- 7B病房為神經外科病房，收治腦功能損傷病人
- 研究顯示腦功能損傷族群(腦中風患者、失智症患者、腦神經系統有障礙之患者)皆為吞嚥障礙好發族群。

7B病房疾病排行榜

排行	105年 (N=839)	106年 (N=965)	107年 (N=1001)	108年 (N=1317)	109年 (N=969)	110年 (N=992)	111年1-8月 (N=611)
1	腰椎退化性 疾病 54.1% n=454	腰椎退化性 疾病 50.3% n=485	腰椎退化性 疾病 50.0% n=480	腰椎退化性 疾病 35.2% n=463	腰椎退化性 疾病 34.7% n=336	腰椎退化性 疾病 27.1% n=269	腰椎退化性 疾病 29.9% n=183
2	頭部外傷 14.2% n=119	頭部外傷 19.7% n=190	頭部外傷 20.5% n=205	頭部外傷 15.1% n=199	頭部外傷 19.3% n=187	頭部外傷 18.8% n=186	頭部外傷 18.7% n=114
3	顱內出血 10.6% n=89	顱內出血 8.3% n=80	顱內出血 11.7% n=117	顱內出血 12.5% n=164	顱內出血 14.1% n=137	顱內出血 14.4% n=143	顱內出血 15.7% n=96
4	頸椎退化性 疾病 7.5% n=63	頸椎退化性 疾病 8.0% n=77	頸椎退化性 疾病 4.4% n=44	頸椎退化性 疾病 7.1% n=94	頸椎退化性 疾病 8.3% n=80	頸椎退化性 疾病 8.8% n=87	頸椎退化性 疾病 8.8% n=53
5	腦梗塞 3.5% n=29	脊椎壓迫性 骨折 4.2% n=41	脊椎壓迫性 骨折 4.2% n=42	腦瘤 3.6% n=47	腦瘤 3.5% n=34	腦瘤 5.5% n=55	腦瘤 3.8% n=23



主要族群	評估方式	盛行率(%)	文獻出處
老年族群			
獨居老人	問券調查	11.4–33.7	Holland <i>et al.</i> <i>Dis Esophagus</i> . 2011 Sep;24(7):476-80. Roy <i>et al.</i> <i>Ann Otol Rhinol Laryngol</i> . 2007 Nov;116(11):858-65 Bloem <i>et al.</i> <i>BMJ</i> . 1990 Mar 17; 300(6726): 721–722. Kawashima <i>et al.</i> <i>Dysphagia</i> . 2004 Fall;19(4):266-71. Yang <i>et al.</i> <i>J Korean Med Sci</i> . 2013 Oct;28(10):1534-9.
	臨床檢測(V-VST)(註1)	23	Serra-Prat <i>J Am Geriatr Soc</i> . 2011 Jan;59(1):186-7.
急性老人科部門	吞水測試或V-VST	29.4–47.0	Lee <i>et al.</i> <i>Ann Acad Med Singapore</i> . 1999 May;28(3):371-6. Cabr� <i>et al.</i> <i>J Gerontol A Biol Sci Med Sci</i> . 2014 Mar;69(3):330-7.
因社區肺炎住院者(註2)	吞水測試或V-VST	55.0–91.7	Cabr� <i>et al.</i> <i>Age Ageing</i> . 2010 Jan;39(1):39-45. Almirall <i>Nestle Nutr Inst Workshop Ser</i> . 2012;72:67-76
因社區肺炎住院者	儀器檢測	75	Almirall <i>Nestle Nutr Inst Workshop Ser</i> . 2012;72:67-76
機構住民	問券調查	40	Nogueira & Reis <i>Clin Interv Aging</i> . 2013;8:221-7.
	吞水測試	38	
	問券調查及臨床檢測	51	Lin <i>et al.</i> <i>J Am Geriatr Soc</i> . 2002 Jun;50(6):1118-23.
中風（急性期）	問券調查	37–45	Martino <i>et al.</i> <i>Stroke</i> . 2005 Dec;36(12):2756-63.
	臨床檢測	51–55	
	儀器檢測	64–78	
中風（慢性期）	臨床檢測	25–45	Martino <i>et al.</i> <i>Stroke</i> . 2005 Dec;36(12):2756-63.
	儀器檢測	40–81	

圖片出處:衛福部107年度「咀嚼吞嚥障礙評估訓練及宣導計畫」臨床診治參考指引



吞嚥障礙定義

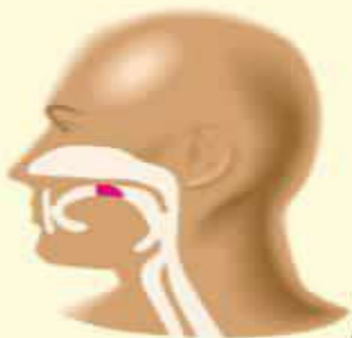
- 吞嚥障礙是指因機能上、構造上或心理上的原因造成進食食物時不易咀嚼、不易嚥下或是容易哽噎。
- 正常的吞嚥動作包括四個階段：
 - 口腔準備期：食物在此階段經過牙齒、唇、頰、顎等部位的協調動作咀嚼形成食團。
 - 口腔期：舌頭將食團向後方推送引發吞嚥反射。
 - 咽部期：吞嚥反射引起將食團推進食道。
 - 食道期：食團通過食道上方進入胃。

吞嚥動作四階段

吞嚥動作4個階段

1

食物進入口腔內，
經牙齒咀嚼
把食物磨碎



(明報健康網製圖)

2

舌頭向上頂，
把食糰推向喉嚨



3

食糰在喉嚨引起
吞嚥反射，咽部肌肉
收緊、會厭遮蓋氣管
防止食物進入氣管，
之後食道肌肉放鬆
把食糰推進食道



4

食糰由食道
蠕動至胃部
進行消化



吞嚥障礙的特徵

- 進食時有食物從嘴唇或鼻孔流出
- 長時間將食物含於口中
- 吞嚥時有過多的頭部動作幫助吞嚥
- 吞嚥後有食物渣滓殘留在口腔
- 進食過程中出現咳嗽、氣喘或有痰聲
- 每口食物都需要吞嚥多次
- 喉嚨有異物感

吞嚥障礙常見狀況

- 發燒及反覆性肺炎。
- 食物含著很久不吞下。
- 食物堆積在嘴巴的一邊。
- 吃的問題使體重減輕10%。
- 吃東西或喝水時有咳嗽情形。
- 只能(或只願意)吃某種質地的食物。
- 無法用吸管吸或無法抵下湯匙上的食物。
- 吞下了食物，但嘴巴內仍殘留或覺得食物卡在喉嚨。
- 吃東西後聲音變不一樣，或有痰音或覺得呼吸困難。



目前臨床吞嚥訓練時機

儲存 返回 成人入院護理評估

基本資料	過去病史	家族病史	一般外觀	皮膚狀況	心肺系統	泌尿系統	腸胃及營養評估
疼痛評估	出院準備計畫評估	聯絡資料					

* 飲食種類 ☐ 普通 ☐ 軟食 ☐ 流質 ☐ 素食 ☒ 管灌飲食， ☒ 使用院內配方 ☐ 自備伙食

* 食慾 ☒ 正常 ☐ 欠佳 ☐ 增加

* 咀嚼 ☐ 正常 ☒ 困難

* 吞嚥 ☐ 正常 ☒ 異常， ☐ 易噎 ☐ 困難 ☒ 鼻胃管 ☐ 胃造廔 ☐ 腸造廔

* 進食方式 ☐ 禁食 ☐ 由口進食 ☒ 管灌飲食 ☐ 靜脈營養

於入院評估時若有困難吞嚥情形，則資料會拋轉給復健科

復健科會先遠端評估病人後，再決定是否請醫療端會診介入

延遲介入時機？

目前臨床吞嚥訓練方式

- 間接治療：利用運動增進吞嚥機能
- 口腔動作：

1.舌頭伸出來後在伸進去

2.舌頭伸出外面後再往上翹

3.舌頭向左邊右邊的嘴動

4.舌頭在口內左右移動，推抵兩頰內側

5.用舌尖舔上唇和下唇

6.嘴唇噉起來做吹口哨動作，說/ㄨ/

7.拉開嘴唇，說/一/

8.不停的交換說/一ㄨ一ㄨ一ㄨ/

9.上下唇內縮後用力發/吧/

10.兩頰內縮噉嘴出聲【像親嘴的樣子】

11.兩頰鼓漲，持續越久越好，然後爆/啪/聲

12.說/啪-啪-啪/

13.說/他-他-他/

14.說/咖-咖-咖/

- <https://www.youtube.com/watch?v=gkKbsoXetf8>



目前臨床吞嚥訓練方式

- 刺激吞嚥反射：
 - 利用溫度（冰）或酸（檸檬汁）刺激口腔內前咽門弓來增加吞嚥反射敏感度。
 - 直接性治療：透過語言治療師做直接性的吞嚥障礙治療手法改善問題。

是否有更易執行的方式？



文獻介紹

The Laryngoscope

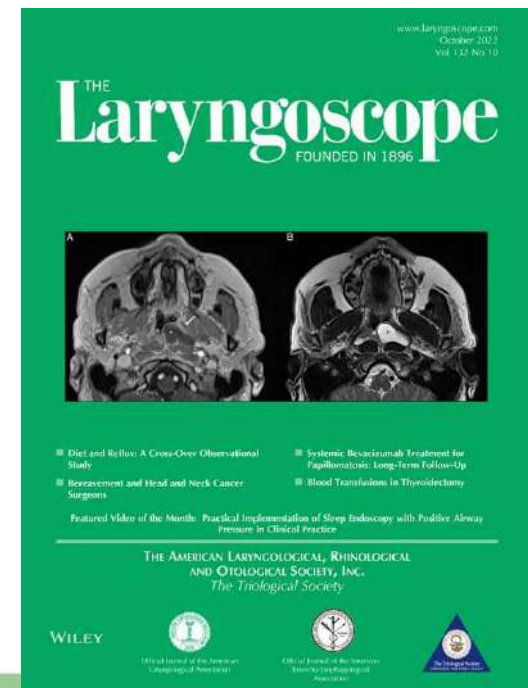
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Effects of Carbonation on Swallowing: Systematic Review and Meta-Analysis

Ayano Nagano, MSc ; Keisuke Maeda, PhD ; Akio Shimizu, MSc; Kenta Murotani, PhD;
Naoharu Mori, PhD

Impact factor:3.325

DOI:10.1002/lary.30019



Appraisal sheets(FAITH)

- Appraisal Tool
 - [統合分析 Meta-analysis]
 - **步驟1：研究探討的問題為何 (PICO)**
 - 步驟2：研究的品質如何 (內在效度)
 - 步驟3：研究結果之意義為何 (效益)



步驟 1：系統性文獻回顧探討的問題為何？

研究族群 / 問題 (Population/ Problem) :

- Adult

介入措施 (Intervention) :

- Carbonated beverage

比較 (Comparison) :

- Other liquids

結果 (Outcomes) :

- Swallowing function



Appraisal sheets(FAITH)

- Appraisal Tool
 - [統合分析 Meta-analysis]
 - 步驟1：研究探討的問題為何 (PICO)
 - **步驟2：研究的品質如何 (內在效度)**
 - 步驟3：研究結果之意義為何 (效益)

步驟 2：系統性文獻回顧的品質如何?(FAITH)

•【F】研究是否找到 (Find) 所有的相關證據？

良好的文獻搜尋至少應包括**二個主要的資料庫**(如：Medline, Cochrane 考科藍實證醫學資料庫, EMBASE 等)，並且加上文獻引用檢索(參考文獻中相關研究、Web of Science, Scopus或 Google Scholar)、試驗登錄資料等。文獻搜尋應**不只限於英文**，並且應同時**使用 MeSH**字串及一般檢索詞彙(**text words**)。

Search Methods

Literature published before March 2021 was inspected using MEDLINE, CINAHL, Web of Science Core Collection, The Cochrane Library, Cochrane Central Register of Controlled Trials (CENTRAL), and Ichushi-web databases. MeSH terms used in the search included “Carbon,” “Carbon Dioxide,” “Carbonates,” “Water,” “Beverages,” “Deglutition Disorders,” and “Deglutition.” We consulted an information specialist working at Aichi Medical University on formula creation and searching. The detailed search strategies are described in Supporting Information, Appendix 1, in the online version of this article.

所收錄的文獻來自各國，含澳洲、美國、日本、印度、德國、英國，雖未提及是否只收錄英文文獻，但仍給過!

評讀結果：●是○否
○不清楚



Appraisal FAITH-步驟 2：系統性文獻回顧的品質如何(A)

【A】-文獻是否經過嚴格評讀應根據不同臨床問題的文章類型，選擇適合的評讀工具，並**說明每篇研究的品質**(如針對治療型的臨床問題，選用隨機分配、盲法、及完整追蹤的研究類型)。

Data Extraction

In the primary screening phase, **two reviewers** (A.N. and A. s.) of the systematic review team **worked independently** to exclude studies that did not meet the inclusion criteria based on the title and the abstract. In case of disagreement, the reasons for the disagreement were clarified; then, **a third reviewer** (K.M.) was consulted on the decision to include or exclude the study.

In the full-text evaluation phase, the same two reviewers read the whole text and evaluated the suitability of the studies. If the two reviewers disagreed, the reason for the disagreement was clarified; then, the opinion of the third reviewer was considered. If the whole text was unavailable, we contacted the corresponding author of the study. If the whole text was still unavailable, the study was excluded.



Appraisal FAITH-步驟 2：系統性文獻回顧的品質如何(A)

【A】-文獻是否經過嚴格評讀應根據不同臨床問題的文章類型，選擇適合的評讀工具，並**說明每篇研究的品質**(如針對治療型的臨床問題，選用隨機分配、盲法、及完整追蹤的研究類型)。

Inclusion Criteria

The search included randomized controlled trials (RCTs) or intervention studies on carbonated liquids. A carbonated liquid was defined as any liquid with carbonic acid, commercial or self-made, and plain or sweetened. The selected studies focused primarily on the swallowing function and included adult participants aged 20 years or older, irrespective of sex, medical history, or clinical settings. Studies in which the outcome was not related to swallowing function were excluded.



Appraisal FAITH-步驟 2：系統性文獻回顧的品質如何(A)

【A】-文獻是否經過嚴格評讀應根據不同臨床問題的文章類型，選擇適合的評讀工具，並**說明每篇研究的品質**(如針對治療型的臨床問題，選用隨機分配、盲法、及完整追蹤的研究類型)。

Risk of Bias Assessment

Two authors (A.N. and A.S.) independently assessed the risk of bias using the **Cochrane tool for assessing the risk of bias for RCTs and the Risk of Bias Assessment Tool for Nonrandomized Studies (RoBANS) tool for nonrandomized studies**. We used the following components for assessing the risk of bias: random sequence generation, allocation concealment, blinding of

Appraisal FAITH-步驟 2：系統性文獻回顧的品質如何(A)

【A】-文獻是否經過嚴格評讀應根據不同臨床問題的文章類型，選擇適合的評讀工具，並**說明每篇研究的品質**(如針對治療型的臨床問題，選用隨機分配、盲法、及完整追蹤的研究類型)。

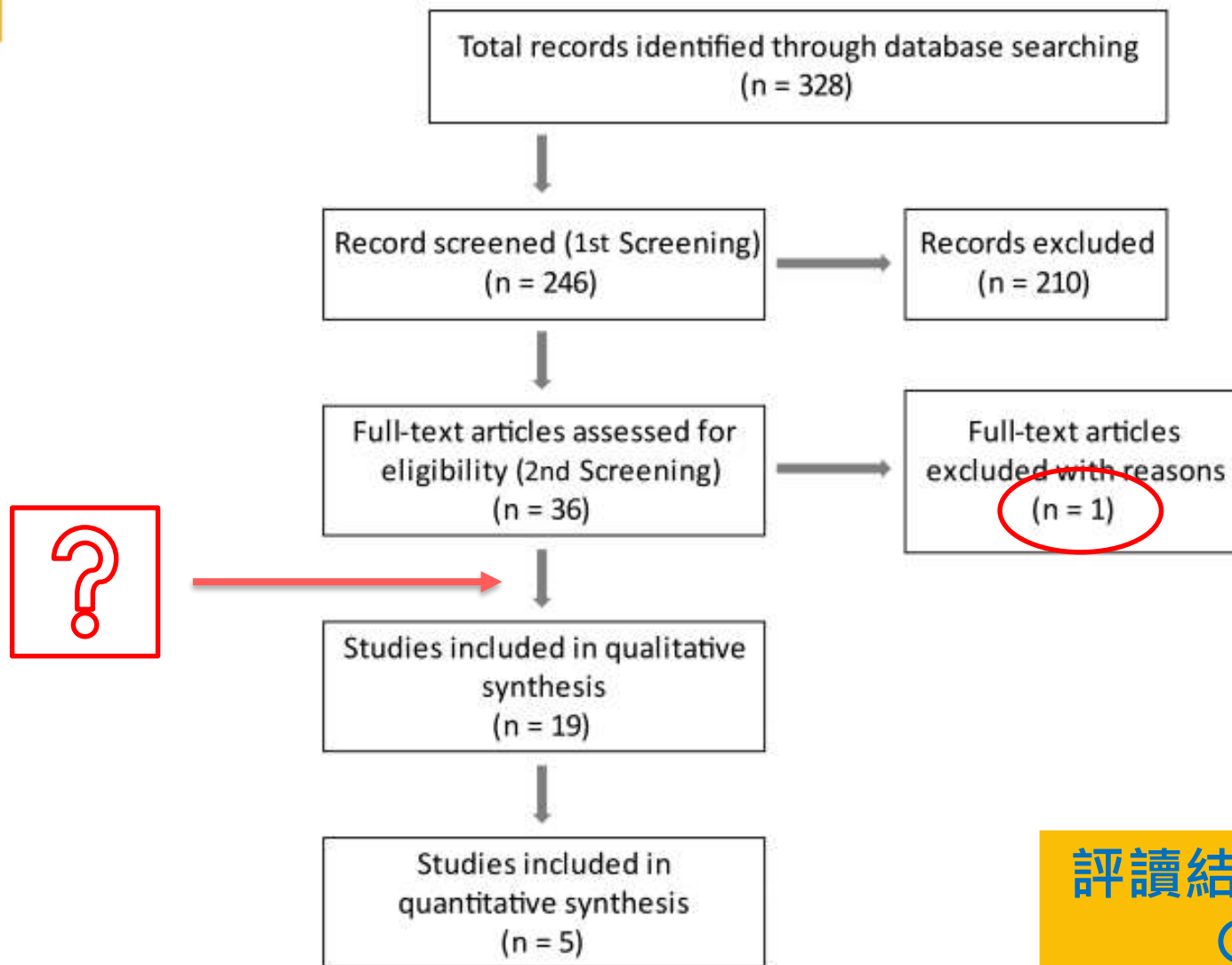
RESULTS

Screening Results

A total of 328 records were identified by the electronic database search. After duplicates were removed, the remaining 246 records were screened, and 32 articles were identified for evaluation based on the inclusion criteria. Of these, 19 studies were included in the qualitative analysis, and five were included in the quantitative synthesis. The workflow diagram of the search is shown in Fig. 1.



PRISMA 的流程圖



評讀結果：●是○否
○不清楚

Included FAITH-步驟 2：系統性文獻回顧的品質如何(I)

【I】是否只納入 (Included) 具良好效度的文章？

僅進行文獻判讀是不足夠，系統性文獻回顧只納入至少要有一項研究結果是極小偏誤的試驗。

	A	B	C	D	E	F
Todd (2012)*	?	+	+	-	+	+
Plonk (2011)*	+	-	-	-	-	+
Larsson (2017)**	+	-	+	-	+	+
Turkington (2019b)**	+	-	+	-	+	+
Sdravou (2012)**	+	-	+	+	+	+
	- high risk	+ low risk		? unclear		

Fig. 2. The risk of bias assessment. The Cochrane tool for assessing the risk of bias was used for RCTs and the Risk of Bias Assessment Tool for Nonrandomized Studies (RoBANS) was used for nonrandomized studies. *The Cochrane tool for assessing risk of bias: A: random sequence generation, B: allocation concealment, C: blinding of participants and personnel, D: blinding of outcome assessment, E: incomplete outcome data, F: selective outcome reporting. **The Risk of Bias Assessment Tool for Nonrandomized Studies: A: selection of participants, B: confounding variables, C: measurement of exposure, D: blinding of outcome assessments, E: incomplete outcome data, F: selective outcome reporting. [Color figure can be viewed in the online issue, which is available at www.laryngoscope.com.]

評讀結果：●是○否
○不清楚

TABLE 1.
Characteristics of Included Studies.

Study	Design and Patients' Characteristics	Swallowing Problems and Etiology	Comparisons	Outcomes
Bülow et al., ¹⁵ Sweden	Nonrandomized intervention study Order: control first n = 40, Female 45% Mean age: 68.7 years old Patients who submitted for a VFSS.	36 were neurologically impaired, 19 had a cerebral vascular accident, and four had no neurological diseases.	Intervention: Carbonated thin liquid Control: thin liquid and thickened liquid	Penetration/aspiration, pharyngeal transit time, pharyngeal retention
Plonk et al., ¹⁶ USA	Crossover trial n = 80, Female 100% 18–35 years old and +60 years old Volunteers from the community	No history of swallowing or taste disorders or allergies to any stimuli	Intervention: Carbonation Control: water, acid, and ethanol	Swallowing apnea duration
Dodderi et al., ¹⁷ India	Nonrandomized intervention study Order: unknown n = 30, Female 50% 18–24 years old, mean age 21.6 years old Orally recruited	No deglutition disorder assessed by Eating Assessment Test-10	Intervention: carbonated sweet water Control: lukewarm water	Total swallowing time of 100 ml drinking
Kani et al., ¹⁸ Japan	Nonrandomized intervention study Order: unknown n = 5, Female 40% 22–35 years old	No swallowing problem	Intervention: Carbonated water (weak, medium, strong) Control: Still water	Swallowing Function Parameter
Karaho et al., ¹⁹ Japan	Nonrandomized intervention study Order: unknown n = 15, Female 20%	5 had pseudobulbar palsy, 10 were healthy without swallowing problem.	Intervention: Cold carbonated water Control: Lukewarm water and cold water	Volume for elicitation of swallowing reflex

Karaho et al., ¹⁹ Japan	Nonrandomized intervention study Order: unknown n = 15, Female 20%	5 had pseudobulbar palsy, 10 were healthy without swallowing problem.	Intervention: Cold carbonated water Control: Lukewarm water and cold water	Volume for elicitation of swallowing reflex
Kimura and Sasaki, ²⁰ Japan	Nonrandomized intervention study Order: control first n = 7, Female 29%	N/A	Intervention: Carbonated beverage Control: Water	Pharyngeal transit time
Dafiah and Swapna, ²¹	Crossover trial n = 60, Female 50% 18–35 years old	No swallowing problem	Intervention: Carbonated drink Control: Water, lemon juice concentrate	The amplitude and duration of hyolaryngeal elevation
Michou et al., ²² UK	Crossover trial n = 20, Female 35% Mean age: 25.7 years old	No history of swallowing problems	Intervention: Carbonated water Control: still water	Swallowing reaction times
Regan, ²³ Ireland	Crossover trial n = 15, Female 47% 45–86 years old, mean age 63 years old Patients with dysphagia who were attending an outpatient dysphagia clinic in an acute hospital setting.	Presence of dysphagia (Functional Oral Intake Score < 6) Various etiologies	Intervention: carbonated liquid Control: Still water and sour liquid	Pharyngeal occlusive pressure, duration of upper esophageal sphincter opening, upper esophageal sphincter pressure
Larsson et al., ²⁴ Sweden	Nonrandomized intervention study Order: unknown n = 48, Female 37.5% Mean age: 76.0 years old Patients who had been referred to the Diagnostic Centre of Imaging and Functional Medicine at the Skane	38 had a diagnosis of dementia with Lewy bodies and 10 had a diagnosis of Parkinson's disease dementia	Intervention: Carbonated liquid Control: Thickened liquids and thin liquids	Penetration scale, pharyngeal transit time

(Continues)

TABLE 1.
Continued

Study	Design and Patients' Characteristics	Swallowing Problems and Etiology	Comparisons	Outcomes
	University Hospital from the Memory Clinic in Malmö for a therapeutic videoradiographic swallowing study as part of clinical practice.			
Moritaka et al., ²⁵ Japan	Nonrandomized intervention study Order: unknown n = 20, Female 100% Participants recruited from university for woman.	No recent or current swallowing impairment	Intervention: Carbonated drink with gas volumes of 1.5, 2.7 Control: Carbonated drink with gas volumes of 0 (noncarbonated)	Linguopalatal swallowing pressure and duration, bolus velocity through the pharynx, sensory evaluation
Turkington et al., ²⁶ Australia	Nonrandomized intervention study Order: control first n = 42, Female 100% Mean age: 37.64 years old	No swallowing difficulties.	Intervention: Carbonated water Control: Still water, barium + acid base reaction (sulfate)	Palatability, sip volume
Turkington et al., ²⁷ Australia	Nonrandomized intervention study Order: control first n = 29, Female 41% Patients who were referred for instrumental VFSS within an adult acute care tertiary facility.	Neurogenic dysphagia with PAS score ≥ 3 on thin fluids drinking	Intervention: Carbonated thin fluid Control: Noncarbonated thin fluid	PAS scoresVideofluoroscopic dysphagia scale
Magara et al., ²⁸ Japan	Crossover trial n = 14, Female 21% Mean age: 27.5 years old Volunteers	No swallowing problems	Intervention: Sham pharyngeal electrical stimulation (PES) + carbonated water Controls: Only PES, PES + carbonated water, PES + still water	Pharyngeal MEP, corticobulbar and craniobulbar resting motor threshold, MEP amplitudes

Elshukri et al., ²⁹ Germany	Crossover trial n = 16, Female 50% Mean age: 33 years old Volunteers	No history of swallowing difficulty	Intervention: Carbonated solutions Controls: mineral water and citric acid	Swallowing reaction time, MEP
Morishita et al., ³⁰ Japan	Nonrandomized intervention study Order: control first n = 28 Young individuals attending Kibi International University, and elderly inpatients admitted for fracture and internal disease	No diagnosis of dysphagia	Intervention: Carbonated water Control: Tap water and sports drink	Duration of Laryngeal Elevation
Todd et al., ³¹ USA	Crossover trial n = 80, Female 100% 18–35 years old and over 60 years old	No history of swallowing disorders	Intervention: Barium and carbonation Controls: Barium, barium and citric acid, barium, and ethanol	Swallowing apnea duration, palatability
Sdravou et al., ³² Ireland	Nonrandomized intervention study Order: control first n = 17, Female 29% Outpatients referred by physicians or speech- language pathologists for VFSS at the research site.	All patients had oropharyngeal dysphagia with associated with pulmonary disease. Three participants had a tracheostomy tube sited in the past that was no longer in situ at the time of the study	Intervention: Carbonated thin liquids Control: Noncarbonated thin liquids	Oral transit time, pharyngeal transit time, stage transition duration, initiation of the pharyngeal swallow scale, penetration-aspiration scale, pharyngeal retention scale
Krival and Bates, ³³ USA	Crossover trial n = 20, Female 100% Mean age: 24.8 years old Community dowering	Recent or current swallowing impairment	Intervention: Carbonation, carbonated beverage Control: Water	Palatability, peak linguopalatal swallowing pressure, release phase duration, linguopalatal pressure patterns

MEP = motor-evoked potential; PAS = penetration aspiration scale; VFSS = videofluoroscopic swallow studies.



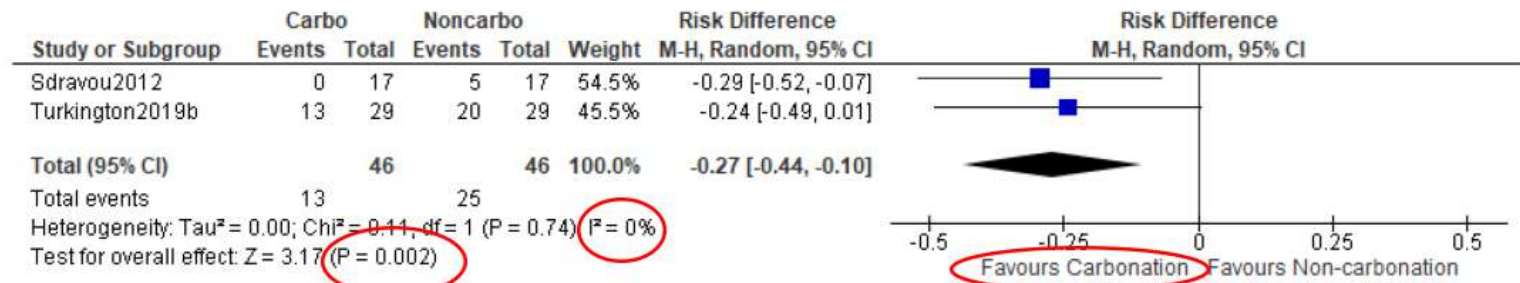
Appraisal FAITH 步驟 2：系統性文獻回顧的品質如何 (T-H)

- **【T】** 作者是否以表格和圖表「總結」(Total up) 試驗結果？
- 以「森林圖」(forest plot) 呈現研究結果，最好再加上異質性分析。
- **【H】** 試驗的結果是否相近 - 異質性 (Heterogeneity) ？
- 在理想情況下，各個試驗的結果應相近或具同質性，若具有異質性，作者應評估差異是否顯著 (卡方檢定)。根據每篇個別研究中不同的 PICO 及研究方法，探討造成異質性的原因。



Appraisal FAITH 步驟 2：系統性文獻回顧的品質如何 (T-H)

(A) Effect of carbonation on aspiration



(B) Effect of carbonation on penetration/aspiration

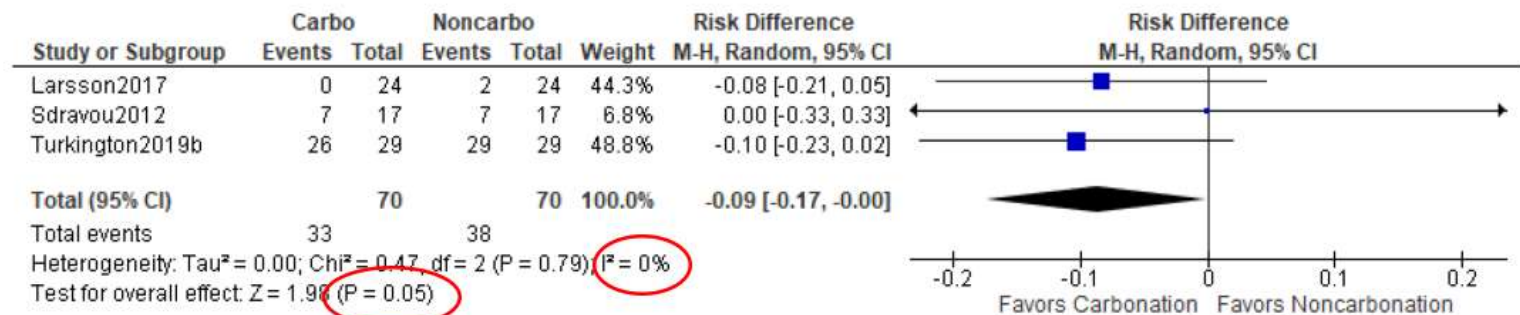
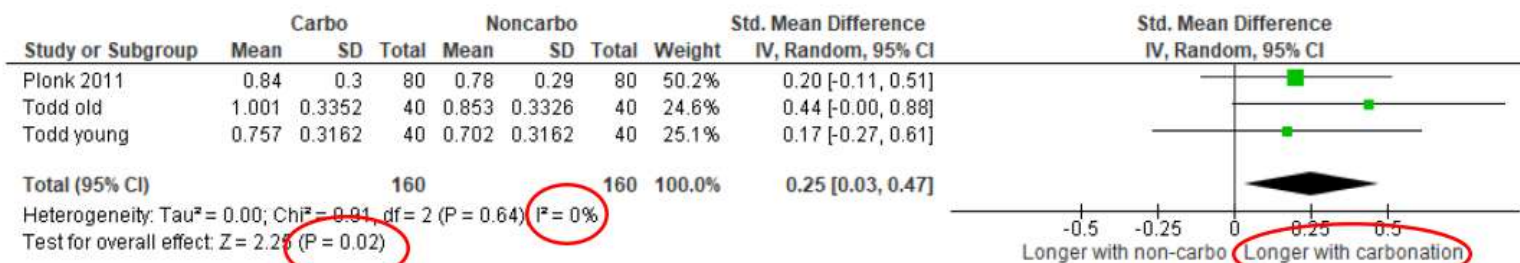


Fig. 3. Forest-plot for comparison of carbonation versus noncarbonation based on the occurrence of (A) aspiration and (B) penetration/aspiration. (A) Effect of carbonation on aspiration. (B) Effect of carbonation on penetration/aspiration. Carbo = carbonated liquid; CI = confidence interval; M-H = Mantel-Haenszel; noncarbo = noncarbonated liquid. [Color figure can be viewed in the online issue, which is available at www.laryngoscope.com.]

Appraisal FAITH 步驟 2：系統性文獻回顧的品質如何 (T-H)

(A) Effect of carbonation versus non-carbonation (water) on the duration of swallowing apnea



(B) Effect of carbonation vs. acid on the duration of swallowing apnea

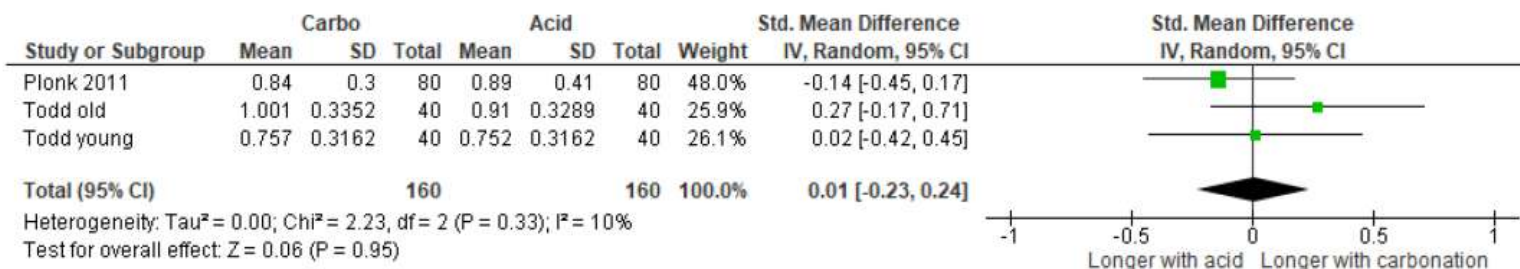


Fig. 4. Forest-plot for comparison of carbonation versus (A) noncarbonation and (B) acid on the duration of swallowing apnea (seconds). (A) Effect of carbonation versus noncarbonation (water) on the duration of swallowing apnea. (B) Effect of carbonation versus acid on the duration of swallowing apnea. Carbo = carbonated liquid; noncarbo = noncarbonated liquid; CI = confidence interval; IV = inverse variance; SD = standard deviation. [Color figure can be viewed in the online issue, which is available at www.laryngoscope.com.]

評讀結果：●是○否
○不清楚

評讀總表

系統性文獻回顧品質	評讀結果
研究是否找到(Find) 所有的相關證據？	是
文獻是否經過嚴格評讀(Appraisal)？	是
是否只納入(Included)具良好效度的文章？	是
作者是否以表格和圖表「總結」(Total up)試驗結果？	是
試驗的結果是否相近-異質性(Heterogeneity)？	是



Appraisal sheets(FAITH)

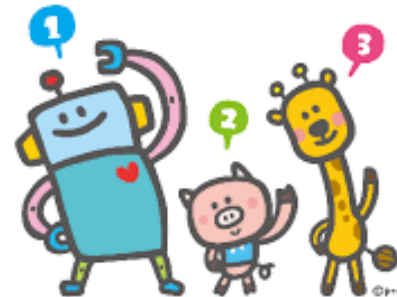
- Appraisal Tool

- [統合分析 Meta-analysis]

- 步驟1：研究探討的問題為何 (PICO)
 - 步驟2：研究的品質如何 (內在效度)
 - 步驟3：研究結果之意義為何 (效益)

結論

- 碳酸飲料可延長呼吸中止時間
- 碳酸飲料可降低吸入、嗆入發生率
- 碳酸飲料對吞嚥功能有**有利影響**



限制、建議

- 樣本數少
- 缺乏高質量證據
- 需要更多研究參與



依系統性文獻回顧之結論

 是否同意使用碳酸飲料改善病人吞嚥功能？

同意：27人

尚有疑慮：0人

不同意：0人





感謝聆聽 恭請指教

